MEDICAL EXPENDITURE PANEL SURVEY (MEPS)

Workshop Workbook

Co-sponsored by: **Agency for Healthcare Research and Quality**
National Center for Health Statistics

MEPS Workshop Workbook
Table of Contents

The Medical Expenditure Panel Survey, or MEPS as it is commonly called, is the third in a series of national probability surveys conducted by AHRQ on the financing and utilization of medical care in the United States. The National Medical Care Expenditure Survey (NMCES) was conducted in 1977 and the National Medical Expenditure Survey (NMES) in 1987. Although modes of data collection and instrument design have changed considerably over the last 20 years, every effort was made to maintain a core set of critical data elements to facilitate longitudinal analysis.

MEPS Workshop Workbook Table of Contents (Cont)

The Medical Expenditure Panel Survey, or MEPS as it is commonly called, is the third in a series of national probability surveys conducted by AHRQ on the financing and utilization of medical care in the United States. The National Medical Care Expenditure Survey (NMCES) was conducted in 1977 and the National Medical Expenditure Survey (NMES) in 1987. Although modes of data collection and instrument design have changed considerably over the last 20 years, every effort was made to maintain a core set of critical data elements to facilitate longitudinal analysis.

MEDICAL EXPENDITURE PANEL SURVEY (MEPS)

Overview

Co-sponsored by: **Agency for Healthcare Research and Quality**
National Center for Health Statistics

MEPS History

- 1977 National Medical Care Expenditure Survey
- 1987 National Medical Expenditure Survey
- 1996 Medical Expenditure Panel Survey

The Medical Expenditure Panel Survey, or MEPS as it is commonly called, is the third in a series of national probability surveys conducted by AHRQ on the financing and utilization of medical care in the United States. The National Medical Care Expenditure Survey (NMCES) was conducted in 1977 and the National Medical Expenditure Survey (NMES) in 1987. Although modes of data collection and instrument design have changed considerably over the last 20 years, every effort was made to maintain a core set of critical data elements to facilitate longitudinal analysis.

MEPS Components

- Household Component (HC)
- Medical Provider Component (MPC)
- Insurance Component (IC)
- Nursing Home Component (NHC)

MEPS actually comprises a family of surveys that cover four different major components of the U.S. healthcare system: (1) a household survey; (2) a survey of medical providers (doctors, hospitals and home health agencies) linked to the household survey; (3) a survey of health insurance providers (employers, insurance companies, associations, and unions), as well as an independent survey of employers; and (4) a periodic survey of nursing home residents.

It should be noted that the MEPS-MPC is not designed to yield national estimates. It is used as an imputation source for expenditure information.

MEPS COMPONENTS

Household Component (MEPS-HC)

MEPS-HC Purpose

- Estimates annual healthcare use and expenditures
- Provides distributional estimates
- Supports person- and family-level analysis
- Tracks changes in insurance coverage and employment

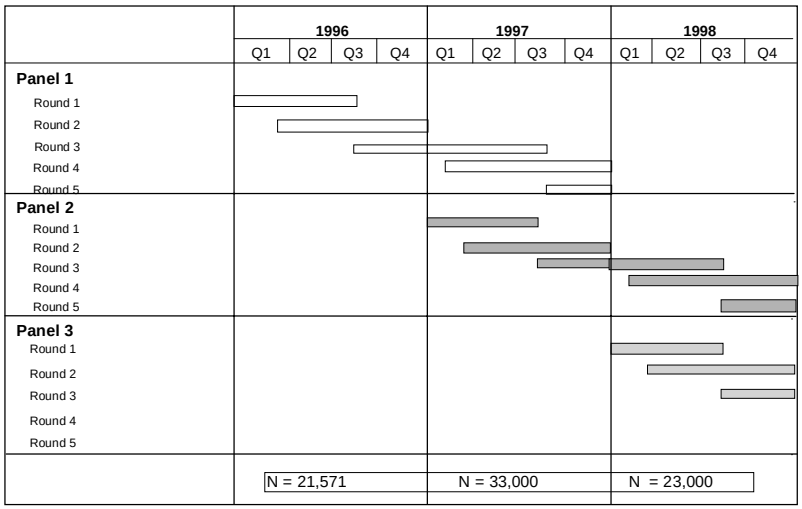
The MEPS-HC is designed to provide nationally representative data on the types of healthcare Americans use, how frequently they use them, how much is paid for the services, and who pays for what portion of those payments. It will also provide information on the types and costs of private health insurance available to and held by the U.S. population.

MEPS-HC Survey Design

- Uses NHIS as sampling frame
- Five in-person interviews (CAPI) over 2-year period
- Continuous overlapping data collection
- Allows longitudinal analysis

The MEPS-HC uses the National Health Interview Survey (NHIS) conducted by the National Center for Health Statistics as its sampling frame. The NHIS sampling frame provides a nationally representative sample of the U.S. civilian non-institutionalized population and reflects an oversampling of blacks and Hispanics. Data are collected at person and household levels in a series of five in-person interviews over the course of 2 years using computer-assisted personal interviewing (CAPI) to collect 2 full years of data.

MEPS Panel Design: Data Reference Periods



The MEPS-HC collects data through an overlapping panel design. In this design, two calendar years of information are collected from each household through five in-person interviews. These data are then linked with additional information collected from the respondents' medical providers, employers, and insurance providers. This series of data collection activities is repeated each year on a new sample of households resulting in overlapping panels of survey data.

Data from subsequent panels can be combined to produce more precise estimates or compared to monitor changes in healthcare utilization and expenditures. For example, as demonstrated in the second column of this graphic, data from the second year of Panel 1 (white bars) can be combined with the first year of Panel 2 (pink bars) to yield a sample size of 33,000 for calendar year 1997. Alternatively, Panel 1 Round 3 data can be combined with Panel 2 Round 1 data to get point-in-time estimates for early 1997.

MEPS-HC Unique Design

- Persons to: Employers
  Providers
  Health plans

MEPS-HC has a unique data collection strategy. For certain types of information that household respondents would have difficulty in reporting (e.g., employer contributions to health insurance premiums or charges for healthcare services provided in an HMO setting), MEPS-HC obtains permission and collects information directly from their employers, healthcare providers, and health plans.

MEPS-HC Units of Analysis

- Person level
- Family level (with and without students)
- Tax-filing units
- Health insurance eligibility units

In terms of units of analysis, MEPS-HC allows the flexibility to combine individuals a number of different ways depending on analytic needs. The FAMID series of variables includes students, and the RULETTER series of variables excludes students.

MEPS-HC Units of Analysis

- **MEPS-HC families:** related by blood, marriage, or adoption, as well as foster children. Include students living away from home and unmarried persons living together as a family unit.
- **Current Population Survey (CPS) families:** exclude foster children, students living away from home, and unmarried persons living together as a family unit.

MEPS-HC Core Interview Content

- Demographics
- Charges and payments
- Health status
- Utilization
- Employment
- Health insurance

At each interview, the MEPS-HC collects detailed data on :

- **Demographic characteristics**, including age, race/ethnicity, sex, marital status, and family relationships.
- **Charges and payments** by source and reasons for differences between charges and payments.
- **Health status**, including overall physical and mental health status, activity, and functional limitations.
- **Employment** for all persons 16+ for each job (including retirement jobs); includes employment status, roster of all jobs, hours worked, job tenure, wages, types of business, and whether health insurance was offered.
- **Health insurance**, both private and public, for each round; includes name of the policy holder, the source of coverage (employer-sponsored or privately purchased), who is covered, whether it is an HMO or some other type of managed healthcare plan, and type of plan (self or family coverage). Availability of coverage from an employer is ascertained and, if health insurance was available from the employer, whether or not the person elected coverage.

MEPS-HC Utilization Data

- Hospital stays
- Other hospital care
- Office-based physician care
- Other medical providers
- Dental services
- Home health
- Prescribed medications
- Medical equipment and supplies
- Alternative care
- OTC medications

The MEPS-HC collects data about all hospital services (emergency room, inpatient and outpatient events), physician services, home health care, and prescribed medicines. Information on over-the-counter (OTC) medications was ascertained only at the family level.

MEPS-HC Event Detail

- Type of practitioner
- Time spent with provider
- Type of care
- Conditions
- Charges
- Payments

For each event, the type of practitioner (physician, non-physician, type of non-physician), the time spent with provider, the type of care (e.g., general check-up, diagnosis or treatment, emergency, well-child), the condition (which is later ICD-9 coded), and all charges and payments are ascertained.

MEPS-HC Periodic Supplements

- Access to care
- Satisfaction with health plans, providers
- Long-term care
- Health status
- Income and assets

Topical modules are periodically rotated in and out of the MEPS-HC. These modules tend to focus on areas of policy interest and have included:

- Whether persons have a usual source of care, reasons for not having a usual source of care, difficulties in obtaining care
- Satisfaction with usual source of care, health plans, and choice of providers
- Characteristics of long-term caregivers
- Activities of daily living (ADL) and instrumental ADL (IADL) measures
- Amounts and types of income (once a year) and enumeration of assets (once a panel)

Future supplements will include quality and condition-specific information.

MEPS Information and Data Dissemination

MEPS Web Site

- **www.meps.ahrq.gov**
- Information found on the MEPS Web site:
  - **Overview of MEPS**
  - **Survey instruments**
  - **Findings/highlights/chartbooks**
  - **Public-use data files**
  - **Data product availability and ordering information**
  - **Recent papers and reports**
  - **MEPS data workshop information and schedule**
  - **Household health expenditure and population projections**
  - **Mailing list and List server**

MEPS Mailing List and List Server

- Click on “Mail List/List Server” from Web site
- Both provide e-mail notices of data and publications released on the Web
- List server allows for interactive exchange of ideas and information

MEPS Public-Use Data
Methods of Dissemination

- MEPS Web site
  - **www.meps.ahrq.gov**
- AHRQ clearinghouse
  - CD-ROM
  - 1-800-358-9295
- Questions?
  - MEPSPD@ahrq.gov
  - Kelly Carper 301-594-3075

Types of Files

- **Full-year:** calendar year data
- **Point-in-time:** snapshot of first part of year
- **Special topic:** periodic supplements

A series of calendar year-specific MEPS public-use files (PUFs) is produced annually. Each file includes full-year information from several rounds of data collection, which together comprise a complete calendar year's worth of information. Full-year data files vary in structure depending on the nature of the file content. Files are produced at the person level, event level, condition level, and job level.

In addition to full-year files, MEPS also releases point-in-time files and special-topic files.

Point-in-time files produce a snapshot of what is going on at a fixed point in time. In the case of MEPS files, the point in time is the first part of the calendar year. These files contain minimal data elements and are intended to give analysts an early glimpse of what the full-year estimates will likely be.

Special-topic files are based on data collected in supplements to the MEPS on an intermittent basis, such as questions pertaining to access to care. These files will be released periodically as data become available.

Levels of Files

- **Person level:** detailed person information
- **Event level:** detailed event information
- **Condition level:** detailed condition information
- **Job level:** detailed job information

MEPS data are released at several different levels.

On **person-level files**, each record on the file represents a person and includes characteristics associated with each person; for example, age, race, or sex.

On **event-level files**, each record represents a unique medical event and includes characteristics associated with that event. For example, on the Prescribed Medicine event file, the drug name, quantity, and strength would be included on the record. MEPS releases eight specific event files: Hospital Inpatient Stay, Emergency Room, Outpatient, Office-Based Provider, Home Health, Dental, Prescribed Medicine, and Other Medical Expenditures.

On **condition-level files**, each record represents a household health condition reported by a particular person. Each record includes characteristics associated with the condition (e.g., ICD-9 code) and whether the condition was caused by an accident or injury.

On **job-level files**, each record represents a job and includes characteristics of the job; for example, wages, benefits, and industry.

For event-, job-, and condition-level files, a person may be associated with one record, several records, or not at all. For example, if a person does not report any condition in a given year, he or she will not have any records on the condition file. It should be noted that if a person reports multiple episodes of an acute condition over the course of a year, multiple records will exist for that condition on the condition file.

All of the MEPS files for a particular year are linkable. Linking information is provided as part of the documentation for each public-use data file.

Full-Year MEPS-HC PUFs

Person Level

- Demographics and Health Insurance
- Use and Expenditure

Jobs Level

Condition Level

RX/COND Link File

NHIS Link File

Event Level

- Prescribed Medicines
- Hospital File
- Emergency Room File
- Outpatient Dept. File
- Dental File
- Medical Office Visit File
- Home Health

All of the MEPS PUF data are available for downloading from the MEPS Web site as ASCII files with SAS format statements. Most include actual SAS files. The MEPS/NHIS link file is available upon request by contacting May Chu at 301-594-7413.

Center for Cost and Financing (CCFS) Data Center

For confidentiality reasons, some of the MEPS data cannot be released. To allow outside researchers access to the data, AHRQ's Center for Cost and Financing Studies (CCFS) has established an onsite data center.

CCFS Data Center

- Physical space at AHRQ in Rockville
- Provides researchers access to non-public use MEPS data (except directly identifiable information)
- Access only to data needed for approved project

Confidential Data

- 1996 MEPS Nursing Home Component (NHC) data
- Linked MEPS Household Component (HC) and Insurance Component (IC) data
- Linked MEPS-HC and Secondary data
- All non-public use data

Data Access at CCFS Data Center

- Researchers may obtain data through the “guest researcher” program, which permits users to use the data directly
- Alternatively, programming support will be available at a cost from an AHRQ contractor

CCFS Data Center Facilities

- Secure room
- Terminal connected to secure LAN
- SAS, STATA, GAUSS, Stat Transfer, SUDAAN, Limdep, and EQS software available; other software available upon request
- Limited staff support by people who know:
  - Data
  - Confidentiality issues
  - Software

CCFS Data Center Procedures

- May bring data in, but not out
- Tabular data will be reviewed for confidentiality
- Only approved tables can leave the CCFS Data Center
- CCFS Data Center will store data files, foreign merge files, and all outputs needed for replication

Application and Review Process

- Submit proposal to CCFS Data Center manager
- Review within 4-8 weeks for feasibility and data availability
- Institutional Review Board (IRB) review required

Additional details on the CCFS Data Center will be posted on the MEPS Web site as they become available.

Census Research Data Center (RDC)

- MEPS-IC List Sample data can only be used in a Census Bureau RDC
- RDC information can be found at the following Web site:

  www.census.gov/cecon/www/ces.html

MEPS-IC List Sample data are collected under Census Bureau authority and are available only in a Census RDC.

MEPS PERSON-LEVEL FILES

Health Insurance Variables

MEPS Person-Level Insurance Files

- What is health insurance?
  - Hospital and physician coverage
- What is not health insurance?
  - Disease-specific insurance
  - Dental insurance
  - Prescription drug plans
  - Vision insurance
  - Special State programs
  - Pet insurance

MEPS Person-Level Insurance Files

- What is included in the presentation:
  - Person-level health insurance coverage
- What is not included in the presentation:
  - Employer health insurance offerings (MEPS-IC)
    - Plan benefits
  - Health insurance premiums (HIPA)
    - Detailed insurance benefits
    - Employee contribution
    - Employer contribution

MEPS HIPA

Information abstracted from booklets includes:

- List of covered services
- Deductible amounts
- Co-payments and co-insurance rates
- Out-of-pocket limits
- Annual and lifetime maximums
- In-plan and out-of-plan benefits

MEPS-IC Questionnaire

- Establishment-level data
  - Is health insurance offered?
  - How many plans are offered?
  - Are optional plans offered for dental, vision, prescription drugs, or long-term care?
  - Is there a waiting period? How long?
  - Number of employees, employees eligible for health insurance, and employees enrolled in health insurance by full-time or part-time

Data are collected at several levels. The establishment level is the most important level for most of AHRQ's analytical goals.

MEPS-IC Questionnaire

- Plan-level data
  - Type of plan
  - Purchased or self-insured plan
  - Number of enrollees in plan (active, retired, COBRA, or single)
  - Premiums and contributions for single and family coverage
  - Deductibles, co-payments, maximums
  - Services covered under plan

Data are collected for up to four plans per establishment.

Type of plan is based on plan characteristics. Plan type names such as health maintenance organization (HMO) and preferred provider organization (PPO) are becoming less and less meaningful when compared to what is actually being offered.

Governments are asked to report on all plans offered.

Respondents are asked to report the family plan for a family of four; therefore, AHRQ does not get information on plans with a separate level for two adults or one adult and one child.

Services covered are simple YES/NO questions for services such as chiropractic care, well-baby care, preventative services, prescription drugs, and mental health. No data are collected on how much is covered for these services.

Relationship between Health Insurance Status and:

- Demographic characteristics
  - Age, sex, race, ethnicity, marital status
- Perceived health status of household member
  - Excellent, very good, good, fair, poor
- Geographic location
  - Census region
  - Metropolitan statistical area
- Employment status of household members
- Income, Utilization and Expenditures, Events (1996 only)

Public-Use File HC001
Health Insurance, First Half of 1996

- CHAMPUS/CHAMPVA
- Medicare (edited)
- Medicaid (edited)
- Other public
- State-specific programs
- Private health insurance coverage
- Insured (any health insurance coverage for 1 day or more)
  - Uninsured throughout first half of 1996

Minimal editing was performed on Medicare and Medicaid variables, and other coverage types were unedited and unimputed. Medicare and CHAMPUS/CHAMPVA coverage is at time of interview; otherwise, coverage is at any time during the first half of the year.

Medicare was edited to yes if the sample person was aged 65 or older and received Social Security benefits, or if he or she was covered by Medicaid or other public hospital/physician insurance or Medigap insurance, or if his or her spouse was aged 65 or older and covered by Medicare.

Medicaid was edited to yes if the sample person reported public hospital/physician coverage from a Medicaid HMO and did not pay a premium or reported Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI) coverage.

State program participation was identified. However, persons covered only by State-specific programs (for example, Maryland and Kidney Disease Program) were considered to be uninsured.

Public coverage includes CHAMPUS/CHAMPVA, Medicare, Medicaid, and other public hospital/physician coverage.

Private health insurance coverage from specific sources includes employer group, union group, non-group, other group, don't know source, from someone outside the household (employment related, not employment related).

Insured, any health insurance reported includes CHAMPUS/CHAMPVA, Medicare, Medicaid or other public insurance with hospital/physician coverage, or private hospital/physician coverage (including Medigap insurance).

Public-Use File HC001
Health Insurance, First Half of 1996

- Private health insurance policy holder
  - Employer group plan
  - Union group plan
  - Other group plan
  - Non-group plan
  - Self-employed health insurance, firm size = 1
  - Source unknown
  - From someone outside household

Public-Use File HC003
Health Insurance, 1996 Panel 1, Round 1

- Includes health insurance variables from HC001 release
  - Estimates will differ slightly from those of HC001
  - 30 persons have missing values
- HMO variables (updated from HC002)
  - Medicare
  - Medicaid
  - Private

Estimates will differ slightly from those of release HC001 because of adjustments to the sampling weight to compensate for survey attrition.

HMO enrollment variables for public and private insurance are currently available for Round 1 of the 1996 Panel only.

HMO Medicare. The sample person reported Medicare and identified his or her plan from a list of Medicare HMOs in his or her area; or the sample person reported generally receiving health care from HMO physicians; or the sample person is required to sign up for a certain primary care doctor, group of doctors, or clinic for all routine health care.

HMO Medicaid. The sample person reported Medicaid or some other public program that provides hospital/physician insurance coverage and identified his or her plan from a list of Medicaid HMOs; or the cost of care is not covered unless referred by the HMO (excluding emergencies); or the sample person is required to sign up for a certain primary care doctor, group of doctors, or clinic for all routine health care.

HMO Private Insurance. The sample person reported private insurance that was purchased directly from an HMO; or the health insurance company was identified as an HMO; or the cost of care is not covered unless referred by the HMO (excluding emergencies); or the sample person is required to sign up for a certain primary care doctor, group of doctors, or clinic for all routine health care.

Public-Use File HC008
Health Insurance, Full Year 1996

- Month-to-month health insurance status for:
  - CHAMPUS/CHAMPVA
  - Medicare (edited)
  - Medicaid (edited)
  - Other public
  - State-specific programs
  - Private health insurance coverage
  - Insured (any health insurance coverage for 1 day or more)
    - Uninsured the entire month

Constructed and edited variables are provided that indicate any coverage in each month of 1996.

In Rounds 2 and 3, private health insurance that was in effect at the previous round's interview date was reviewed with the respondent. Most of the insurance variables have been logically edited to address issues that arose during such reviews in Rounds 2 and 3. One edit to the private insurance variables corrects for a problem concerning covered benefits, which occurred when respondents reported a change in any of their private health insurance plan names. Additional edits address issues of missing data on the time period of coverage for both public and private coverage that was either reviewed or initially reported in a given round.

Editing for CHAMPUS/CHAMPVA, Medicare, and Medicaid is similar to release HC001. State program participation was identified. However, persons covered only by State-specific programs (for example, Maryland and Kidney Disease Program) were considered to be uninsured.

Public coverage includes CHAMPUS/CHAMPVA, Medicare, Medicaid, and other public hospital/physician coverage.

Private health insurance coverage from specific sources includes employer group, union group, non-group, other group, don't know source, from someone outside the household (employment related, not employment related).

Insured, any health insurance reported, includes CHAMPUS/CHAMPVA, Medicare, Medicaid or other public insurance with hospital/physician coverage, or private hospital/physician coverage (including Medigap insurance).

Public-Use File HC008
Health Insurance, Full Year 1996

- Month-to-month for private health insurance policy holder
  - Employer group plan
  - Union group plan
  - Other group plan
  - Non-group plan
  - Self-employed health insurance, firm size = 1
  - Source unknown
  - From someone outside household (coverage only)

Public-Use Files HC005, HC009, and HC013 Health Insurance, First Half of 1997, 1998, 1999

- Less detail than HC001, first half of 1996
- CHAMPUS/CHAMPVA (TRICARE–HC009/013)
- Medicare (edited)
- Other public (Medicaid and other public hospital/physician coverage)
- Private health insurance coverage
- Insured (any health insurance coverage for 1 day or more)
  - Uninsured throughout first half of 1997, 1998, 1999

Constructed and edited variables are provided for general categories of health insurance coverage. Medicare and CHAMPUS/CHAMPVA (TRICARE–HC009 only) coverage is at time of interview; otherwise, coverage is at any time during the first half of the year.

For CHAMPUS/CHAMPVA (TRICARE–HC009 only), if the sample person is aged 65 or older, then the reported coverage is overturned. (If the sample person is active military, the reported coverage is overturned for HC005 but not for HC009.)

Medicare was edited to yes if the sample person was aged 65 or older and received Social Security benefits; or if the sample person was covered by Medicaid or other public hospital/physician insurance or Medigap insurance; or if his or her spouse was aged 65 or older and was covered by Medicare.

Unlike 1996 releases HC001, HC003, and HC008, **other public coverage** refers to both Medicaid and to other public hospital/physician coverage.

Private health insurance coverage (hospital and physician) includes employer, union, purchased directly, group or non-group insurance, or Medigap insurance.

Insured, any health insurance reported, includes CHAMPUS/CHAMPVA (TRICARE–HC009 only), Medicare, Medicaid or other public insurance with hospital/physician coverage, or private hospital/physician coverage.

Future Releases

- 1997 full-year, month-to-month health insurance status released in December 2000
- Similar to release HC008

MEPS COMPONENTS

Insurance Component (MEPS-IC)

MEPS-IC Background

- Nationwide, annual survey of employers to collect information on their health insurance offerings
- Both private and public-sector establishments in the survey
- Consists of two different samples with different analytical goals

The MEPS-IC survey is also known as the Health Insurance Cost Study.

The public- and private-sector establishments are collected on similar (but different) data collection instruments. Copies of the data collection instruments are available on the MEPS Web site.

MEPS-IC Data Collection

- U.S. Census Bureau is data collection contractor
- Collection of health insurance information for 1996 began in 1997
- Data for 1996, 1997, and 1998 now available
- Data for future years available approximately 18 months after the end of that year

The Census Bureau was selected as the data collection and data processing contractor because of the high quality of their sampling frame and their expertise in collecting data from establishments. AHRQ was required to use a Federal government agency as a condition of receiving clearance for the survey from the U.S. Office of Management and Budget.

Data are collected for the previous year to accommodate the Household Sample. Data for future years will be available approximately 18 months after the end of the reference year. For example, 1999 data will be posted in the summer of 2001.

MEPS-IC Survey Samples

- **List Sample:** Independent sample of establishments drawn from two Census Bureau sources
- **Household Sample:** Current main employers and other sources of health insurance identified by households in the MEPS-HC survey

MEPS-IC List Sample

- Sample of private establishments drawn from the Census Bureau's SSEL
  - Approximately 27,300 establishments sampled
- Sample of State and local governments drawn from the Census Bureau's Census of Governments
  - Approximately 1,700 government units sampled

The Standard Statistical Establishment List (SSEL) is unique among establishment universes because it provides a grouping of establishments by firm. This grouping allows for coordination of firm data, as well as firm-level estimates for data such as retiree insurance, which are often not kept at the establishment level. The SSEL information is highly restricted by the Census Bureau, because it is based on tax records from the IRS.

The base sample sizes are very similar from year to year.

The List Sample was larger in 1998 based on buy-ins by the State of Massachusetts and the Robert Wood Johnson Foundation. Future buy-ins by State agencies or research organizations are possible.

MEPS-IC List Sample

- Designed to produce national and State estimates
- Designed to produce year-to-year estimates
- Not linkable to MEPS-HC survey
- Data are Census Bureau confidential and cannot be used to produce public-use files
- Post-data collection processing (e.g., editing, imputation) is conducted by the Census Bureau

State estimates are made for 40 States each year. Estimates for the 20 States with the least population are produced on a rotation schedule so each State will have estimates produced at least once every 4 years.

MEPS-IC List Sample

- Tabular output available on AHRQ Internet site and on CD-ROM
  - **www.meps.ahrq.gov**
  - Click on **Data** and then click on **Insurance Component Tables**
- List Sample data files available only at the Census Bureau RDC

Individuals must apply to do research at an RDC.

MEPS-IC Household Sample

- Data link to MEPS-HC survey households
- Not designed to produce State estimates
- Data are AHRQ confidential (no Census Bureau restrictions are applicable)
- Final post-data collection processing and linking is conducted by AHRQ

The Household Sample can come from either the first or second year of the Household survey, depending upon sample size restrictions and analytical goals determined by AHRQ.

MEPS-IC Household Sample

- Access to Data
  - Problems producing files linked to MEPS-HC
    - "Linkability" of cases
    - Quantity (low response rates)
    - Quality (item-level response rates)
    - Maintaining the confidentiality of respondents
  - Public-use file is not releasable
    - Cannot be used for national and regional estimates
    - Policy and plans held
    - No weights

Household Sample data are available only at the CCFS Data Center.

MEPS- IC Household Sample

- Alternative strategy for access to Household Sample is to provide data access at the CCFS Data Center

MEPS-IC Survey Integration

- List and Household data are collected at the same time on the same questionnaires and use the same data processing system
- Overlapping establishments are combined prior to collection to reduce respondent burden

Merging the two samples takes additional processing time and effort, but results in a coordinated collection that minimizes the impact on the respondents.

Some data are collected at the firm level. Identifying List and Household cases that go to the same firm minimizes the number of contacts with these firms and minimizes their reporting requirements. This results in a higher level of cooperation for this voluntary survey.

MEPS-IC Questionnaire

- Establishment-level data
  - Is health insurance offered?
  - How many plans are offered?
  - Are optional plans offered for dental, vision, prescription drugs, or long-term care?
  - Is there a waiting period? How long?
  - Number of employees, employees eligible for health insurance, and employees enrolled in health insurance by full-time or part-time

Data are collected at several levels. The establishment level is the most important level for many of AHRQ's analytical goals.

An establishment is an economic unit at a single physical location where business is conducted or services or industrial operations are performed.

A firm may comprise one or more establishments.

MEPS-IC Questionnaire

- Establishment-level data
  - Workforce demographics
    - Percent of women employees
    - Percent of employees aged 50 and older
    - Percent of employees who are union members
    - Distribution of workers by hourly wage level

These demographic questions are often difficult for respondents at the firm level or for larger establishments. Respondents are apprehensive about these questions because they perceive that AHRQ might be looking for discriminatory behavior.

Hourly wages are categorized by the percent less than $6.50 an hour, percent between $6.50 and $15.00 an hour, and percent more than $15.00 an hour.

MEPS-IC Questionnaire

- Plan-level data
  - Type of plan
  - Purchased or self-insured plan
  - Number of enrollees in plan (active, retired, COBRA, or single)
  - Premiums and contributions for single and family coverage
  - Deductibles, co-payments, maximums
  - Services covered under plan

Data are collected for up to four plans per establishment.

Type of plan is based on plan characteristics. Plan type names such as health maintenance organization (HMO) and preferred provider organization (PPO) are becoming less and less meaningful when compared to what is actually being offered.

Governments are asked to report on all plans offered.

Respondents are asked to report the family plan for a family of four; therefore, AHRQ does not get information on plans with a separate level for two adults or one adult and one child.

Services covered are simple YES/NO questions for services such as chiropractic care, well-baby care, preventative services, prescription drugs, and mental health. No data are collected on how much is covered for these services.

MEPS-IC Questionnaire

- Firm-level data
  - Other benefits offered (vacation, sick leave, life or disability insurance, retirement plan, medical savings account, flexible spending account, flexible benefit plan)
  - Type of business
  - Years in business
  - Number of employees in firm

A firm is a company or business. A firm may consist of a single establishment or a multitude of establishments.

For example, the local barbershop may be both a firm and an establishment. On the other hand, WalMart and Sears are large firms that have many establishments located throughout the country.

MEPS-IC Questionnaire

- Person-level data for Household Sample cases (first year only)
  - Employee status with establishment
  - Plans for which the employee was eligible
  - Plan in which the employee enrolled
  - Premiums and contributions for this specific employee's plan

Person-level data were collected only for the 1996 survey. These data were dropped in subsequent years because of poor response rates and difficulties with the acceptance of permission forms by employers.

For 1997 and future years, the link back to the Household survey is more difficult, since only plan-level information was available for linkage.

MEPS-IC Questionnaire

- Copies of the questionnaires are available from the MEPS Web site
  - **www.meps.ahrq.gov**
  - Click on **Survey Instruments** and then click on **MEPS Insurance Component (IC)**

Data collection instruments are placed on the MEPS Web site when data from that survey year become available. If someone is interested in the most recent collection instruments, he or she can request them through the MEPS project director mailbox.

Census Bureau RDCs

- Formal application process
- All work takes place at a Census RDC (Boston, Pittsburgh, Washington, Los Angeles, or Berkeley)
- Fee for using the RDC
- All output reviewed for confidentiality
  - Regression analysis
  - Tabular output
- **www.census.gov/cecon/www/ces.html**

The Census RDC is the repository for the MEPS-IC List Sample data. No Household linked data are stored at the Census RDC.

The Household linked data are maintained at the CCFS Data Center, and not at the Census RDC.

MEPS Health Insurance Plan Abstraction (HIPA) Data

The Health Insurance Plan Abstraction (HIPA) data were collected in 1996 only. Another similar data collection effort is planned for every 5 to 6 years.

MEPS HIPA

- Policy booklets collected from household respondents and some employers
- Private insurance in effect at Round 1
- Information abstracted by trained coders

The majority of the policy booklets were collected from household respondents. Another set of booklets was collected from employers during the MEPS-IC data collection. The data reflect private insurance coverage in effect during Round 1 of the MEPS.

All of the detailed information contained in the HIPA database was abstracted from actual policy booklets by trained coders. The abstraction form that was used to collect the data is available with the HIPA documentation.

MEPS HIPA

Information abstracted from booklets includes:

- List of covered services
- Deductible amounts
- Copayments and coinsurance rates
- Out-of-pocket limits
- Annual and lifetime maximums
- In-plan and out-of-plan benefits

Data Quality

- HIPA data are unique source of data on detailed insurance benefits
- Unfortunately, data do not support national estimates because of insufficient response
- HIPA data available as research file without a national sampling weight

Unfortunately, the HIPA response rate does not meet the minimum standards set by the Federal government to support nationally representative estimates. The data are being made available nonetheless because they are such a unique source of information on private health insurance benefits.

Within the existing HIPA database, the quality of the data is very good and item non-response is fairly low.

HIPA Data

- Limited to information that commonly appears in policy booklets
- Do not give information on how benefits are applied in real life
- Do not indicate if services are limited by managed care or utilization review

Services Coded in Detail

- Plan characteristics, consumer appeal data, cost containment provisions
- Hospital room and board
- Inpatient surgery
- Outpatient surgery
- Physician office visits

Services Coded in Detail (cont.)

- Mental health inpatient
- Mental health outpatient
- Alcohol and drug inpatient detox
- Alcohol and drug inpatient rehab
- Alcohol and drug outpatient rehab

Services Coded in Detail (cont.)

- Well-baby
- Home health
- Dental
- Prescription drugs
- Medigap
- Vision benefits

Additional Benefits (Yes/No)

- Inpatient physician
- Diagnostic x-ray and lab
- Routine mammograms
- Adult routine physicals
- Routine pap smears
- Prenatal care
- Adult immunizations

Additional Benefits (Yes/No) (cont.)

- Child immunizations
- Well-child care, 2-4 years
- Chiropractic care
- Other non-physician providers
- Rehabilitation facility
- Extended care or skilled nursing facility
- Hospice care

Overall Limits

- Benefit provisions that cover many services
- Overall deductible applies to first expenditures no matter what type of service
- Overall maximums apply to all services
- Out-of-pocket limits usually apply to most services

Analytic Uses of HIPA Data

- Calculate actuarial values of different policies
- Simulate out-of-pocket expenditures for different hypothetical scenarios
- Examine underinsurance
- Model how benefit design affects use of health care services

MEPS PERSON-LEVEL FILES

Income and Tax Filing Variables

Data Collection

- Income data collected twice per panel
  - In Round 3 for year 1
  - In Round 5 for year 2
- 19 types of person-level income
- Respondents were encouraged to use tax records

For joint responses, logical edits are used to assign separate income amounts to married persons whose responses were based on combined income amounts on their joint income tax returns.

Response Rates

- Missing responses
  - Deaths and institutionalization
  - Opting out of income loop in the questionnaire
  - Refusals to provide income information
  - Item non-response

Missing ratios varied by income type:

Wage and salary income = 23%

Social Security income = 32%

Interest income = 21%

Public assistance income = 2%

Imputation for Missing Values

- Missing data for each category of income were edited or imputed independently
- Imputation rates varied by income type
- In general, reported income components were left unedited

Unedited original responses may include outlier values.

Income components are edited in the sequence shown below to maintain consistent patterns of correlation across income sources whenever possible.

Income components: ____*YYX**:

WAGEP*YYX* . . . Wage and salary income
INTRP*YYX* . . . Interest income
BUSNP*YYX* . . . Business income
FARMP*YYX* . . . Farm income
DIVDP*YYX* . . . Dividend income
REFDP*YYX* . . . Refund income
ALIMP*YYX* . . . Alimony income
SALEP*YYX* . . . Sales income
TRSTP*YYX* . . . Trust and rent income
PENSP*YYX* . . . Pension income
IRASP*YYX* . . . IRA income
SSECP*YYX* . . . Social Security income
UNEMP*YYX* . . . Unemployment compensation income
VETSP*YYX* . . . Veteran's income
CASHP*YYX* . . . Other regular cash contributions
OTHRP*YYX*. . . Other income
CHLDP*YYX* . . . Child support
SSIP*YYX* . . . SSI (Supplemental Security Income)
PUBP*YYX* . . . Public assistance
TTLP*YYX* . . . Sum of all income components (except refund and sales income)

**YY*: last 2 digits of the survey year

Types of Imputation

- Different types of imputation strategies were used depending on the type and extent of missing data
  - Logical editing
  - Weighted sequential hot-deck imputation
- Flags indicate the exact type of imputation

Imputation Flags

- __IMP*YY** = **1** : Original response used
- __IMP*YY* = **2** : Bracket converted
- __IMP*YY* = **3** : Missing value set to 0
- __IMP*YY* = **4** : Weeks worked/earnings used (WAGEIMP only)
- __IMP*YY* = **5** : Conditional hot-deck
- __IMP*YY* = **6** : Unconditional hot-deck

**YY*: last two digits of survey year

___IMP*YY** 1 to 3 are for existing income responses

___IMP*YY** 4 to 6 are for missings

Example: Wagep*yyx*

WAGIMP*YY* = 1 : Original response used

Complete responses were left unedited; only exception--people who reported zero wage and salary income despite having been employed for pay during the year

WAGIMP*YY* = 2 : Bracket converted

Respondent provided broad income ranges rather than specific dollar amounts; imputations within specified ranges based on donors in corresponding brackets who gave specific dollar amounts

WAGIMP*YY* = 3 : Missing value set to 0

No wage and salary income reported; respondents who were assigned WAGEP *YY* X = 0 based on either being under 16 or not having been employed during the year

WAGIMP*YY* = 4 : Weeks worked/earnings used

No valid dollar amounts or dollar ranges; information available from the employment sections of R 1, 2, and 3

WAGIMP*YY* = 5 : Conditional hot-deck

Remaining employed persons with missing WAGEP *YY* X; conditional imputation using donors with positive WAGEP *YY* X amounts

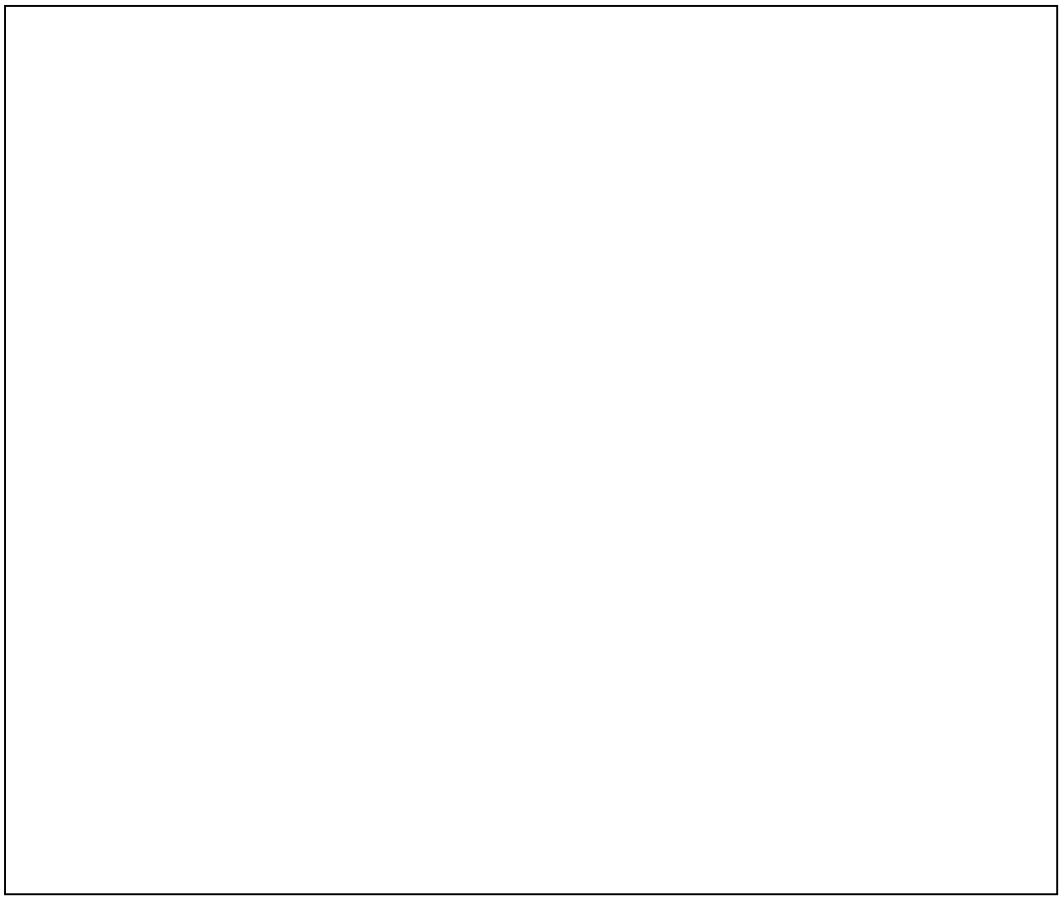
WAGIMP*YY* = 6 : Unconditional hot-deck

Remaining persons with missing WAGEP *YY* X; unconditional imputations that used both workers and non-workers as donors

**YY*: last two digits of survey year

Outliers

- Income data are not edited aggressively to remove outliers
  - Income amounts less than $1 were treated as missing amounts
  - Very few cases of outlier responses were edited
    - Public sources of income greatly exceeded possible amounts
    - Social Security income under-reported



Editing for Confidentiality

- Income top-coding
  - All income amounts
    - Separate sources of income
    - Total income
  - Applied to top percentile of all cases
  - Top-coded income amounts are masked using a regression-based approach

A regression-based approach:

- Preserves the component-by-component weighted means
- Preserves much of the income distribution conditional
- Ensures that every reported amount in excess of its respective threshold is altered on the public-use file
- Inevitably introduces some measurement error
- Can also help reduce the impact of outliers

Total Income: TTLP*YY**X

- Constructed as the sum of the adjusted income components
- Top-coded
- Components of income are then scaled up or down to make the sources of income consistent with the newly adjusted totals

YY: last two digits of survey year

Poverty Status: POVCAT*YY**

- Categorical variable as a percentage of poverty
- Constructed from total family income divided by the applicable poverty line
- Grouped into five categories
  - 1 = negative or poor = < 100%
  - 2 = near poor = 100 . . . < 125 %
  - 3 = low income = 125 . . . < 200 %
  - 4 = middle income = 200 . . . < 400 %
  - 5 = high income = > 400 %

***** *YY*: last two digits of survey year

Total family income is constructed by summing person-level income totals (TTLP*YY*X*) within families defined by the Current Population Survey (CPS) family identifier (CPSFAMID).

Total family income is then combined with information on family size and composition to assign each member of a "CPS family" a value of POVCAT*YY** equal to TTLFAM expressed as a percentage of the relevant poverty threshold.

Persons with CPSFAMID = -1 are treated as single-person families in creating total family income and POVCAT*YY**. Researchers working with a family definition other than CPSFAMID may wish to create their own versions of total family income (and perhaps POVCAT*YY**).

* *YY*: last two digits of survey year

Unedited Income-Related Variables

- Unedited tax filing information should be used with great care
- Tax filing
  - Tax variables
  - Food stamp variables
- Non-response
  - While the tax variables are provided to assist researchers building tax simulation programs, they contain substantial item non-response

Unedited Income Related Variables (cont.)

- Program participation
  - Supplemental Security Income (SSI) disability flag
  - Aid to Families with Dependent Children (AFDC) participation flag
    - AFDC recipiency flags not edited
    - AFDC dollars, or actually cash welfare dollars, were only edited or imputed for those missing
    - 33% under-reported in MEPS as compared to actual national figures

Medical Conditions File

General File Structure

- Each record represents a unique condition or procedure reported by a household respondent
- Depending on the number of conditions they reported, persons may be represented on the file several times or not at all

This public-use file provides information about the conditions for a nationally representative sample of the civilian non-institutionalized population of the United States. All information on this file has been collected from household respondents only.

Each record represents a unique condition (defined on the file by an ICD-9 condition code, V-code, or procedure code) reported by a household respondent. If a person reported three different conditions (e.g., asthma, hypertension, and diabetes), then he or she will have three separate records on the condition file. If another respondent reports asthma, bronchitis, and heart disease, then he or she will be represented three times, with three separate records on the condition file. Even though each person reported asthma, there will be two separate records for asthma on the file—one for each respondent who reported asthma.

Each record can include information about a condition or a procedure or both.

Although this file contains conditions and procedures, it is referred to as “Medical Conditions File.”

Reporting and Recording Conditions

- Interviewer records verbatim responses to open-ended questions reported by the household respondent
  - Condition enumeration section
  - Medical event sections
  - Disability section
  - Pregnancy section

Respondents are asked to report current conditions in the condition enumeration section of the questionnaire at every round of data collection. Interviewers record the respondent's verbatim response to each open-ended question. From this information, CAPI generates a condition roster for every person in the household. Later in the interview, respondents are asked the reason for a medical provider visit, missed workdays, missed school days, and bed-days. At these points in the interview, conditions can be added to the roster if they were not previously mentioned. The only condition recorded in the pregnancy section is the pregnancy itself.

Reporting and Recording Conditions

- Respondents may report having the same condition more than once
  - Interviewer verifies that these are different occurrences of the condition
  - Each unique episode of a condition is recorded only once
    - Person may have more than one cold in a year
    - Each cold has a separate record

If a respondent reports a cold in Round 1 and again in Round 2, the interviewer verifies whether or not this is the same cold. If it is a different cold, then the condition is entered a second time. If the respondent indicates that it is the same cold, then the interviewer does not enter a new condition. Similarly, if "cold" is reported in Round 1 and later in the interview given as the reason for a provider visit, the interviewer asks if this is the same cold reported previously. If it is a different cold, then cold is entered on the condition roster again.

Respondents will frequently report several provider visits for chronic conditions, such as diabetes or hypertension. However, the condition will appear only once on the person's condition roster, and that person will only have one record for that condition on the condition file.

File Structure Revisited

DUPERSID	CONDIDX	ICD9CODX	ICD9PROX
1234	12341	asthma	-1
1234	12342	hypertension	-1
1234	12343	diabetes	-1
5432	54321	asthma	-1
5432	54322	cold	chest X-ray
5432	54323	cold	-1
9876	98761	-1	chest X-ray
9876	98762	flu shot	-1

This example of what records may look like shows the following:

- A person (DUPERSID) can be represented three times on the condition file (three different CONDIDX values).
- A person can have the same condition (ICD9CODX) more than once.
- A procedure (ICD9PROX) can be included along with a condition or on a separate record.
- Some records include only a procedure.

Flu shot is not a condition, but ICD-9 V-codes (reason for visit) were included on the file if a person gave a reason for a provider visit as something other than a condition or a procedure.

Condition Coding

- Professional coders
- Fully specified ICD-9 CM codes (up to five digits)
- Less than 2.5% error rates

Accuracy of Condition Data

- Analysts should not presume a high level of precision in condition data
  - Inaccurate or vague reports of condition
  - Clustering of ICD-9 codes in NEC (not elsewhere classified)
  - One respondent provides information for the entire household

Although codes were verified and error rates did not exceed 2.5%, analysts should not presume this level of precision in the data; the ability of household respondents to report condition data that can be coded accurately should not be assumed. Reports are sometimes vague (e.g., kidney problems, bad knee), which results in clustering of ICD-9 codes as "Not Elsewhere Classified."

Because of these inaccuracies, AHRQ does not recommend that analysts use condition data for prevalence or mortality studies.

Editing Conditions

- ICD-9 codes collapsed to three digits to maintain confidentiality
- Less than 10% of codes were collapsed further by combining two or more three-digit codes

To preserve confidentiality, all of the condition codes provided have been collapsed from fully specified codes to three-digit code categories. Table 1 in Appendix 2 of the documentation provides unweighted and weighted frequencies for all ICD-9 condition code values. To further preserve confidentiality, approximately 10% of the ICD-9 codes were collapsed even further. These are indicated in the codebook in the value label of the ICD-9 code.

Procedure Codes

- Same collection, coding, and editing procedures as conditions
- Collapsed from fully specified (up to four digits) to two-digit codes
- Less than 3% were collapsed further by combining two or more three-digit codes

Procedure codes were also collapsed from fully specified codes to two-digit category codes. To preserve confidentiality, approximately 3% were further collapsed. Table 2 in Appendix 2 of the documentation provides unweighted and weighted frequencies for procedures.

Procedures were under-reported on the condition roster by household respondents as a reason for a provider visit. Analysts should use procedures identified on the event files for more accurate estimates of procedures.

Clinical Classification Codes

- Formerly Clinical Classification for Health Policy Research (CCHPR)
- ICD-9 codes aggregated into clinically meaningful categories
- Less than 2% edited to preserve confidentiality

ICD-9 CM condition codes have been aggregated into clinically meaningful categories that group similar conditions. Clinical Classification Software (CCS) aggregates conditions and V-codes into 260 mutually exclusive categories, most of which are clinically homogeneous. Table 3 in Appendix 2 of the documentation provides unweighted and weighted estimates for the clinical classifications. Appendix 3 lists the ICD-9 codes that have been aggregated for each CCS category.

Priority Conditions

- Conditions are designated priority conditions based on:
  - Prevalence, expense, relevance to policy
  - Other criteria
    - Chronic conditions
    - Life-threatening conditions

Certain conditions were designated as “priority conditions” (PRIOLIST) due to their prevalence, expense, or relevance to policy. Some were long-term, life-threatening conditions such as cancer, diabetes, emphysema, high cholesterol, HIV/AIDS, hypertension, ischemic heart disease, and stroke. Others were chronic, manageable conditions including arthritis, asthma, gall bladder disease, stomach ulcers, and back problems of any kind. Alzheimer’s disease, dementia, depression, and anxiety disorders were included in the priority list. The priority conditions are listed in Appendix 4 of the documentation.

No edits were done on priority conditions to reconcile differences between the priority list and assigned ICD-9 codes.

Accidents and Injuries

- Ascertained at time of interview
  - Date of accident
  - Place (work, home, school, etc.)
  - Cause (gun, vehicle, fall, fire, etc.)
  - Whether or not the person has recovered from the injury

When a condition was first mentioned, respondents were asked whether it was due to an accident or an injury. If the condition was due to an accident or injury, the interviewer collected the day of the week, month, and year; whether or not the accident or injury occurred at work; where the accident occurred; whether it involved a motor vehicle or a gun or other weapon; and whether it was the result of poison, fire, drowning, sports, or a fall. Lastly, the interviewer asked if the person had fully recovered from the injury. Because the date of the accident or injury was converted to the day of the week, analysts cannot use the day of the week in conjunction with the accident month and year to determine the exact date.

Only logical edits based on skip patterns were performed for injuries.

Alternative Care

- Asked in Rounds 3 and 5 for entire year
- Asked if an alternative care (AC) provider was seen for the specific condition
- AC includes
  - Nutritional therapy
  - Biofeedback
  - Imagery or relaxation techniques
  - Homeopathic treatments
  - Others

In Round 3, respondents were asked whether or not alternative care was received for any condition reported. Alternative care includes the use of treatments such as acupuncture, nutritional advice, massage therapy, herbal remedies, biofeedback, imagery or relaxation techniques, homeopathic treatments, spiritual healing or prayer, hypnosis, or traditional medicine such as Chinese or American Indian medicine.

Provider Visits for Conditions

- Number of times a provider was seen for a condition by type of provider
  - Events are at the condition level
  - Persons can be seen for more than one condition per visit

Variables indicate the total number of medical provider visits associated with each condition by type of provider: home health (HHNUM), dental visits (DVNUM), hospital stays (HSNUM), outpatient visits (OPNUM), office-based medical provider visits (OBNUM), and emergency room visits (ERNUM).

Because persons can be seen for more than one condition per visit, these frequencies will not match the person- or event-level utilization counts. For example, if a person had one hospital stay and was treated for a fractured hip, a fractured shoulder, and a concussion, each of these conditions has a unique record and the hospital provider visit is 1 (HSNUM = 1). If HSNUM is summed for these records, then the total hospital stays would be three when actually there was only one hospital stay for that person and three conditions were treated. These variables are useful in determining the number of hospital stays for head injuries, hip fractures, etc.

Weighted Estimates

- Condition file includes person-level weights
  - Frequencies from this file will estimate the number of times a condition was reported by the sample population
  - Number of persons reporting a condition can be estimated only at the person level

Frequencies derived from the condition-level file will estimate the number of times a condition was reported, e.g., the number of head injuries reported in the survey year. The number of persons who reported diabetes or asthma must be determined at the person level. This will be demonstrated in one of the lab exercises.

Sample Design and Estimation for MEPS Weights

Survey Weights

- Based on MEPS-HC
- Account for:
  - Unequal probabilities of selection
  - Non-response and attrition
- Two types:
  - Person
  - Family

Survey weights must be used to produce estimates from MEPS to account for the complex survey design, unequal probabilities of selection, and survey non-response. MEPS is designed to support national estimates for both persons and families. Therefore, two types of weights are available: person and family.

Person-level analyses are generally more common than family-level analyses.

Development of Person Weights

- Base weight (NHIS)
  - Compensates for oversampling and non-response
- Adjustments for
  - Household non-response (MEPS Round 1)
  - Attrition (MEPS Rounds 2-3)
  - Post-stratification (Census population estimates)
- Final person weight

Development of person weights is a multi-stage process, which starts with the NHIS weight. This weight is adjusted to compensate for households and persons without responses to MEPS for the entire year. The characteristics used to adjust weights were related to both the likelihood of non-response and survey measures.

Weights were adjusted to match Census population estimates on selected characteristics, including sex, age, race/ethnicity, and geographic area. Several person-level weights evolved as more data became available.

The variable name for a person-level weight is WTDPER*YY*, where *YY* is the survey year.

Variance Estimation

- MEPS not a simple random sample (SRS)
- Software to account for complex design
  - SUDAAN
  - STATA
  - WesVar
- Basic SAS procedures assume SRS

MEPS is not a simple random sample, and standard errors for many estimates from the survey will be larger than expected from a simple random sample.

SUDAAN and STATA are commonly used to estimate standard errors from surveys with complex sample designs like MEPS. The latest version of SAS (version 8) will account for the complex design, but results (using MEPS) have not yet been compared to SUDAAN and STATA.

Example of Variance Estimation for 1996

- Estimated expenditures for 1996 = $559.5 billion
- Standard error of estimate
  - SAS (SRS) = $15.8 billion
  - SUDAAN = $19.6 billion
- Design effect = 1.54

In this example, the standard error on total expenditures for 1996 would be underestimated by $3.8 billion ($19.6 billion minus $15.8 billion) if simple random sampling were assumed. The design effect indicates that the variance was 54% higher than estimated for a comparable sample size in a simple random sample design.

MEPS COMPONENTS

Medical Provider Component (MEPS-MPC)

The MEPS-MPC was not designed as an independent survey for the purposes of producing national estimates. Instead, it is a sample generated from responses to the MEPS-HC. In addition, it covers only those providers for whom the respondent signed a permission form. Because the MEPS-MPC was designed to help compensate for important areas of potentially unreliable and missing data on the MEPS-HC, it is not available publicly as a standalone data set.

MEPS-MPC Background

- Survey of providers
- Directly linked to Household Component (MEPS-HC)
- Permission forms obtained

The Medical Provider Component (MPC) of MEPS is a survey of medical professionals and institutions that provided care to sample persons in MEPS. The major categories of providers include:

- Office-based medical doctors (MDs), doctors of osteopathy (DOs), and other medical providers under the supervision of MDs and DOs
- Hospital facilities providing inpatient, outpatient, and emergency room care
- Home health agencies
- Long-term care institutions
- Pharmacies

Dentists, optometrists, psychologists, podiatrists, chiropractors, and others not providing care under the supervision of an MD or DO are considered out of scope for the MEPS-MPC.

The list of medical providers is generated from responses to the MEPS-HC, and only providers for whom the respondent completed a signed permission form were contacted. Data collected in the MEPS-MPC are used in conjunction with MEPS-HC data to produce national expenditure estimates.

MEPS-MPC Purpose

- Compensate for household non-response
- Accuracy and detail
- Imputation source
- Methodological studies

Data from the MEPS-MPC are critical in the development of MEPS because household respondents are not always a reliable source of information on medical expenditures. In a significant number of instances, they are simply not aware of either the total amount billed, services received, or how much the provider is paid for these services. Typical examples are individuals enrolled in the Medicaid program, where financial transactions occur only between the provider and the State Medicaid agency.

Thus, the primary purpose of the MEPS-MPC is to supplement and validate expenditure data collected in the MEPS-HC for selected types of persons and medical events. Additionally, MEPS-MPC data are used to:

- Replace expenditure information reported in the MEPS-HC with information reported by providers that is generally more complete and may be less prone to errors
- Serve as an imputation source for item non-response to reduce the level of bias in survey estimates of medical expenditures
- Serve as a primary source for expenditure information on physician charges associated with hospital care not included in the hospital bill
- Serve as the primary source for expenditure information for persons on Medicaid

MEPS-MPC Data Collection Methods

- Telephone survey
- Medical records and billing departments
- Flexible strategy

The MEPS-MPC data are collected primarily by telephone. In these interviews, providers are asked about all the care they provided to the sample persons.

For office-based physicians, home health agencies, clinics, and separately billing doctors, the interview is directed to the person who handles the billing for the provider, i.e., either someone in the provider's office or an outside billing agency. Hospital interviews are conducted with both the billing department and the medical records department (to determine the names of all of the doctors who treated the patient during a stay or a visit and may have billed separately). In some hospitals, it may be necessary to contact the administrative office to determine whether doctors identified by medical records billed separately from the hospital and, if so, their addresses and phone numbers.

In general, the data collection strategy allows medical providers to give survey data in any mode that is easy for them; therefore, electronic data, faxed medical reports with abstracts, and telephone responses are all acceptable formats.

MEPS-MPC Targeted Sample

- Office-based and HMO physician samples
- Hospital facility and separately billing doctor (SBD) samples
- Home health agency sample
- Pharmacies
- Long-term institutional care facilities

Office-Based and HMO Physician Samples

The sampling rates are 100% of households with Medicaid recipients, 75% of households with managed care insurance, and 25% of all other households. Once a household was selected for the sample, all office-based physicians and HMOs associated with physician care provided to persons in that household become a part of the MEPS-MPC sample.

Hospital Facility and Separately Billing Doctor (SBD) Samples

All hospitals reported as the site of care for inpatient stays, outpatient department visits, and emergency room encounters for sample persons are included in the MEPS-MPC sample. Separately billing doctors are physicians identified by sample hospitals as providing care to sampled persons during the course of any hospital event, but whose charges were not contained in the hospital bill.

Home Health Agency Sample

All home health agencies, hospitals, social service agencies, and other places identified as providing home health care to sample persons are included. Self-employed and unpaid persons identified as providing home health care were considered out of scope for the MEPS-MPC.

Pharmacy and Long-Term Care Institutional Facility Samples

All pharmacies identified by the household respondent are included in the MEPS-MPC.

MEPS-MPC Data Collected

- Dates of visits
- Diagnosis and procedure codes
- Charges and payments
- Reasons for difference

The MEPS-MPC enumerates the charges and payments for the event; the total charge is equal to the full established charge for the visit. The sources of payment for the service include:

1. Out of pocket by user or family
2. Medicare
3. Medicaid
4. Private insurance
5. Veteran's Administration, excluding CHAMPVA
6. CHAMPUS or CHAMPVA
7. Other Federal sources, including Indian Health Service, Military Treatment Facilities, and other care by the Federal government
8. Other State and local sources, including community and neighborhood clinics, State and local health departments, and State programs other than Medicaid
9. Worker's Compensation
10. Other unclassified sources, including sources such as automobile, homeowner's, liability, and other miscellaneous or unknown sources

If the charge and payment are not equal, then the interviewer must discover the reason why. For example, if the payment is less than the charge, then the difference may represent an adjustment or discount, expectation of additional payment, charity care or a sliding scale, or bad debt. Likewise, if the payment is greater than the charges, then the difference may represent a Medicare, Medicaid, or other adjustment.

Diagnosis and procedure codes are collected only to assist in matching MEPS-MPC events to MEPS-HC events. These data are not publicly available.

MEPS-MPC Payment Information

- Fee-for-service payments directly observed
- No direct link in capitation
- Observe out-of-pocket payments
- Collect charges and charge equivalents for all events, including capitated

The expenditure data included on this file were derived from the MEPS-HC and MEPS-MPC components.

In some cases, such as fee-for-service and out-of-pocket payments, expenditures could be directly observed. In other cases, such as capitation, direct payments could not be observed, but data that are highly correlated with payments could be collected, such as charges.

MEPS-MPC Payment Information

- Expenditures equal payments
- Not resource costs

Actual payments are the basic measure of expenditures. AHRQ defines expenditures in MEPS as the *sum of payments*. It is important to emphasize that payments do not measure resource costs.

What is Counted in Payments?

- Out-of-pocket payments
- Third-party payer payments, including Medicare, Medicaid, and private insurance
- Amounts related to services in public providers, including VA hospitals

Expenditures in MEPS are defined as the sum of direct payments for care provided during the year, including out-of-pocket payments and payments by private insurance, Medicare, Medicaid, and other sources. MEPS expenditures also include amounts related to services in public providers, including VA hospitals. In these cases, payments are in the form of budget revenue that these providers receive to provide healthcare services.

What is Not Counted in Payments?

- Free-from-provider services, unless in public facilities
- Bad debt, charity, courtesy allowances
- Payments not directly related to patient care
  - DSH payments
  - Withholds, bonuses, retrospective settlements
  - Contributions from outside sources
  - Clinical trials

Expenditures on this file refer to what is paid for healthcare services. Consequently, amounts related to free care, bad debt, or charity care are not included. Indirect payments not related to specific medical events, such as Medicaid Disproportionate Share and Medicare Direct Medical Education subsidies, are also not included.

MEPS-MPC and MEPS-HC Data

- MEPS-MPC eligible and non-eligible events
- MEPS-MPC and MEPS-HC data linked
- MEPS-MPC data used where available
- MEPS-HC reported data used where no MEPS-MPC exist

Only MEPS-HC data were collected for non-physician visits, dental and vision services, other medical equipment and services, and home healthcare not provided by an agency, while data on expenditures for care provided by home health agencies were collected only in the MEPS-MPC.

MEPS-MPC data were collected for some office-based visits to physicians (or medical providers supervised by physicians), hospital-based events (e.g., inpatient stays, emergency room visits, and outpatient department visits), and prescribed medicines.

MEPS-MPC and MEPS-HC data were linked using a probabilistic matching technique for eligible events. MEPS-MPC data were used for linked events if the data were complete; otherwise, MEPS-HC data were used if complete. If neither were complete, the missing data were imputed.

Basic Editing and Imputation Strategy

- Logical edits to MEPS-HC and MEPS-MPC data
- Impute any missing payment data
- Preserve partial payment data (out-of-pocket)

A series of logical edits were applied to both the MEPS-HC and MEPS-MPC data to correct for several problems, including outliers, copayments or charges reported as total payments, and reimbursed amounts that were reported as out-of-pocket payments.

The edits were designed to preserve partial payment data from households and providers and to identify actual and potential sources of payment for each household-reported event. They produced a complete vector of expenditures for some events and provided the starting point for imputing missing expenditures in the remaining events.

MEPS-MPC Changes from 1987

- Collection of data on HMOs
- Treatment of zero payment cases
- Flat fees preserved
- Simultaneous imputation of total expense and distribution
- Partial payment data preserved

AHRQ has made a number of improvements in estimation methods based on experience from 1987. Some of these changes mean, however, that it is not a straightforward task to make direct comparisons of expenditures from NMES and MEPS.

MEPS Event Files

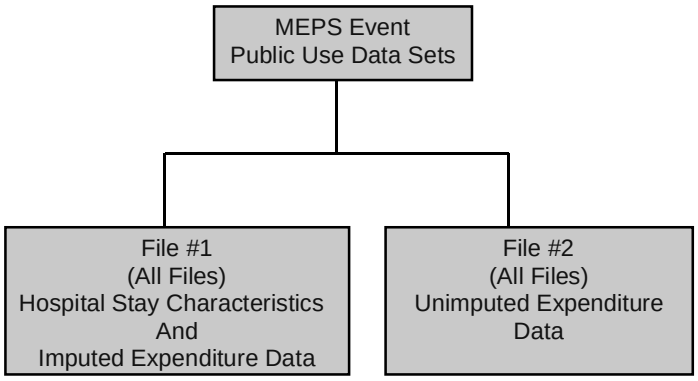
Types of Event Files

- Dental (DN)
- Office-Based Provider (OB)
- Outpatient (OP)
- Hospital Inpatient Stay (IP)
- Emergency Room (ER)
- Other Medical Expenditures (OM)
- Home Health (HH)
- Prescribed Medicine (RX)

What is an Event Record?

- A unique household-reported medical event
  - ER record = a unique emergency room visit
  - Dental record = a unique dental visit
- Population
  - Only persons who reported having a medical event

File Structure



This public-use data set comprises three event-level data files. The majority of analyses require File 1 only.

Categories of Expenditure Variables

- Imputed (File 1)
  - Refers to MEPS-HC expenditures
  - Logical edits
  - Imputation algorithm implemented
  - No missing data
  - End in X
- Preimputed (File 2)
  - Refers to MEPS-HC expenditures
  - Logical edits only
  - Missing data remain
  - End in H
- Unimputed (File 2)
  - Refers to MEPS-MPC expenditures
  - Logical edits only
  - Missing data remain
  - End in M

File 1 contains characteristics associated with the hospital inpatient stay event and imputed expenditure data. Imputed expenditure data are derived from both the MEPS-HC and the MEPS-MPC. All missing values are accounted for.

File 2 contains preimputed and unimputed expenditure data from both the MEPS-HC and the MEPS-MPC for all hospital inpatient stays on File 1.

Preimputed and unimputed expenditure data have undergone a series of logical edits to account for outliers, copayments or charges reported as payments, and misclassification between Medicare and Medicaid and between Medicare HMOs and private HMOs as payment sources. Missing data remain.

Components of Total Expenditure

- Total expenditure
  - Total payments
  - Total charge
- Facility expenditure (IP, ER, OP only)
  - Sources of payment
  - Total payments
  - Total charge
- Physician expenditure (IP, ER, OP only)
  - Sources of payment
  - Total payments
  - Total charge

Source of payment and total charge information is first collected in the Charges and Payment section of the MEPS-HC. The household respondent identifies both the dollar amount and the source of payment (Medicare, Medicaid, private insurance, etc.). The medical provider identified by the household provides similar information as to the total facility charge, the amount paid, and by whom. Information from the medical provider was used to impute missing household expenditure information.

Expenditure data related to inpatient, emergency room, and outpatient visits are broken out by facility and separately billing physician expenditures. Facility expenditures include all expenses for direct hospital care, including room and board, diagnostic and laboratory work, x-rays, and similar charges, as well as any physician services included in the hospital charge.

The imputed facility expenditures are provided on this file. For example, the following facility expenditure variables are included on the 1996 file:

- evFSF96X - evFOT96X are the 12 sources of payment
- evFXP96X is the sum of the 12 source of payments
- evFTC96X is the total charge

The following physician expenditure variables are included on the 1996 file:

- evDSF96X - evDOT96X are the 12 sources of payment
- evDXP96X is the sum of the 12 source of payments
- evDTC96X is the total charge

Analysts interested in total expenditures for 1996 should use the variable evEXP96X, which includes both the facility and physician amounts. Analysts interested in total charge for that year should use the variable evTCH96X.

File 1 Contents

- Unique person/event identifiers
- Type of provider
- Type of service or procedure
- Reason for visit
- Conditions and procedures
- Total number of condition records
- Prescribed medicine received
- VA facility indictor
- Flat-fee information
- Sources of payment
- Total payment or charge
- Imputation flags
- Variance estimation variables
- Full-year person weight
- Date of visit

The eight-character variable DUPERSID uniquely identifies each person represented on the file. EVENTIDX uniquely identifies each event stay (i.e., each record on the file) and is the variable required to link hospital inpatient stay events to data files containing details on conditions and prescribed medicines.

The variable NUMCOND indicates the total number of condition records linked to each event. For events with no condition records linked (NUMCOND = 0), the ICD-9 and Clinical Classification Software (CCS) variables all have a value of -1 (INAPPLICABLE).

File 2 Contents

- Person identifiers
- Record identifiers
- Preimputed MEPS-HC expenditure variables
- Unimputed MEPS-MPC expenditure variables

Each record contains one set of unimputed expenditure information from the MEPS-MPC and one set of expenditure information from the MEPS-HC.

Both imputed and preimputed expenditure data are provided on this file. Preimputed means that only a series of logical edits were applied to both the MEPS-HC and the MEPS-MPC data to correct for several problems, including outliers, copayments or charges reported as total payments, and reimbursed amounts counted as out-of-pocket payments. Edits were also implemented to correct for misclassifications between Medicare and Medicaid and between Medicare HMOs and private HMOs as payment sources. Missing data were not imputed.

This file supplements information released in File 1 and contains missing data, which were not imputed. This file is intended for analysts who want to perform their own imputations to handle missing data.

General Expenditure Caveats

- Flat-fee expenditures
- Zero expenditures

Flat-Fee Payment Groups

- A flat fee is a fixed dollar amount paid for a group of healthcare services
- Flat-fee structure
  - Stem - initial medical visit
  - Leaf - subsequent medical visits

A flat fee is the fixed dollar amount a person is charged for a package of healthcare services, e.g., an obstetrician's fee covering a normal delivery and pre- and post-natal care, or a surgeon's fee covering a surgical procedure and post-surgical care.

A flat-fee group is the set of medical services (i.e., events) that are covered under the same flat-fee payment. The flat-fee groups represented on this file include groups where at least one of the healthcare events, as reported by the MEPS-HC respondent, occurred during the survey year.

Several variables on this file describe a flat-fee payment situation and the number of medical events that are part of a flat-fee group. For a person, the variable FFEEIDX can be used to identify all events that are part of the same flat-fee group.

FFevTYPE indicates whether the hospital stay is the "stem" or "leaf" of a flat-fee group. A stem (FFevTYPE = 1) is the initial medical service (event), which is followed by other medical events that are covered under the same flat-fee payment. The leaf of the flat-fee group (FFevTYPE = 2) are those medical events that are tied back to the initial medical event (the stem) in the flat-fee group.

The variable FFTOT*YY* counts the total number of known events that occurred during year *YY* covered under a single flat-fee payment situation (e.g., FFTOT96 refers to the total number of events for 1996).

Flat-Fee Variables

- Flat-fee ID
- Pre-file-year events in group
- Total number of file-year events in group

Several variables on this file describe a flat-fee payment situation and the number of medical events that are part of a flat-fee group.

FFID11X can be used to identify all events that are part of the same flat-fee group. To identify such events, FFID11X should be used to link events from all MEPS event files (excluding prescribed medicines). For events that are not part of a flat-fee payment situation, the flat-fee variables described below are all set to inapplicable (-1).

For example, for the 1996 file:

- FFBEF96 counts the total number of pre-1996 events in the same flat-fee group as the 1996 hospital stay record.

- FFTOT96 counts the total number of all known events that occurred during 1996 covered under a single flat-fee payment situation.

- FFTOT97 indicates whether or not there are 1997 medical events in the same flat-fee group as the 1996 medical event.

Zero Expenditures

- Reasons for zero expenditures
  - Free care
  - Bad debt
  - Previous flat-fee arrangement
  - Follow-up visit

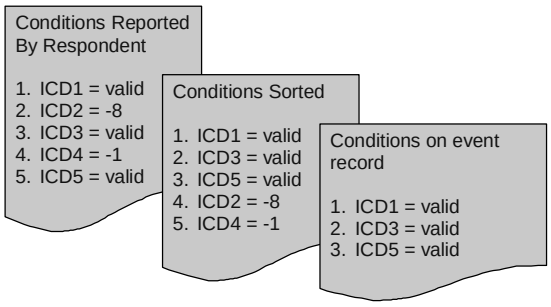
Some respondents reported medical events where payments were zero, which could occur for the following reasons:

- Free care was provided
- Bad debt was incurred
- Care was covered under a flat-fee arrangement beginning in an earlier year
- Follow-up visits were provided without a separate charge (e.g., after a surgical procedure)

If all of the medical events for a person fell into one of these categories, then the total annual expenditures for that person would be zero.

Medical Conditions

- Condition Codes
  - ICD-9 condition codes
  - ICD-9 procedure codes
  - CCS condition codes
- Sorting/linking



Information on medical conditions associated with each event are provided on the event record. Approximately 98% of the conditions associated with the event are on the event record. The remaining 2% can be obtained directly from the Medical Conditions file.

Conditions on the event record are sorted differently than the conditions on the Medical Conditions file. First, the diagnosis codes linked to each event are sequenced in the order in which the conditions were reported by the respondent, which was in chronological order of occurrence and not in order of importance or severity.

To sort, all valid diagnosis codes for an event record were placed on the event file first. If there were less than three valid diagnosis codes associated with a particular event, then the remaining values were placed on the file as well. Condition codes on the Medical Conditions file are not sorted by valid and invalid codes; hence, the first condition on the event file may not be the same as the first condition on the Medical Conditions file.

A small number of events are linked to conditions with valid ICD-9 procedure codes; these codes are not included on the event records but can be obtained by linking to the Medical Conditions file.

Hospital Inpatient Stay (IP) File

Reason for Entering Hospital

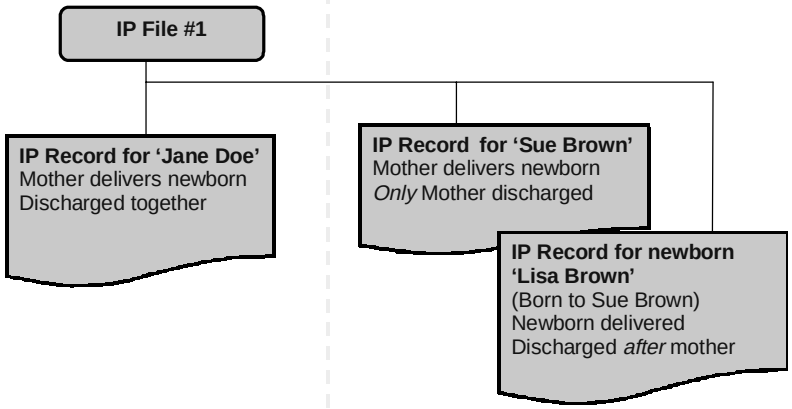
- Reported deliveries
  - Pregnancy ICD-9 codes
  - Delivery ICD-9 codes
- General inconsistency between
  - Reported reason in hospital
  - Reported conditions

Users should note that because of the design of the MEPS-HC survey instrument, most hospital stays that are reported as being for a delivery (RSNINHOS=4) link to condition codes that are for pregnancy rather than a delivery. In addition, RSINHOS has not been reconciled with ICD-9 diagnosis or procedure codes nor with Clinical Classification Software (CCS) condition codes.

IP Expenditure Caveats

- Mother and newborn expenditures
- Hospital and emergency room expenditures

Mother and Newborn Expenditures

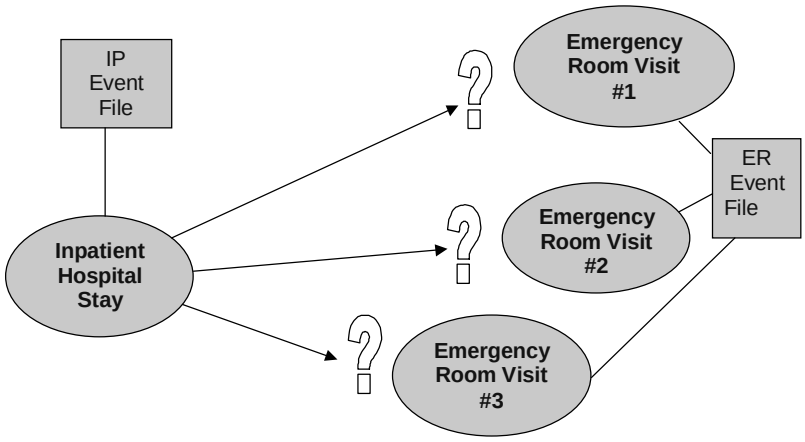


For the most part, when a baby is born, expenditure data regarding its birth are represented on the mother's hospital stay record. Newborns will have an associated hospital stay record only if the newborn was discharged **after** the mother. Then the birth will be represented as two records—one for the mother and one for the baby. Each readmission of a newborn to a hospital results in a separate record for the newborn.

Likewise, expenditure data for most newborns are included on the mother's record. However, when a separate hospital stay record for the newborn exists, expenditure data for that stay are on the separate record.

The variable MBLINK flags hospital stays where expenditures for the delivery of a newborn are included in the mother's record.

Hospital and ER Expenditures



Although a person may have indicated that an emergency room visit preceded this hospital stay (EMERROOM), there was no verification of that if, in fact, the emergency room visit was actually recorded within the Emergency Room section of the questionnaire. Discrepancies occur when the hospital stays record indicates a preceding emergency room visit without a corresponding visit on the emergency room file.

While all event files can be linked by person (DUPERSID), **no** unique record link exists between inpatient stays and emergency room visits. That is, a person could have one inpatient stay and three emergency room visits. While the inpatient stay record may indicate that it was preceded by an emergency room visit, there is no unique record link to the appropriate three emergency room visits.

Users should note that where this relationship could be identified, the expenditure associated with the emergency room visit was believed to be included in the hospital facility expenditure. Hence, for some hospital stays, expenditures for a preceding emergency room visit are included. In these situations, the corresponding emergency room record on the Emergency Room file will have its expenditure information zeroed out to avoid double counting. The variable ERHSFLAG flags hospital stays whose expenditures include the expenditures for the preceding emergency room visit. For these cases, only one hospital stay is associated with the emergency room stay.

Emergency Room (ER) File
Outpatient (OP) File
Office-Based Provider (OB) File

Emergency Room File

- Household-reported emergency room events
- ERHSFLAG
  - Expenditure = $0
  - Indicates if expenditure is associated with hospital admission

Each emergency room record represents one household-reported emergency room event for Rounds 1, 2, and 3. Emergency room events reported in Round 3 and known to have begun after December 31 are not included on this file.

When the expenditure for an emergency room visit equals zero, the ERHSFLAG variable indicates whether or not the expenditure associated with the visit was moved to the Hospital Inpatient Stay file or if there really was no expenditure associated with the visit. Emergency room visit expenditures were moved to the Hospital Inpatient Stay file if the visit resulted in an admission to the hospital.

Outpatient and Medical Provider Events

- Household-reported outpatient department events
- Office-based medical provider visits
  - Not all have MEPS-MPC data

Each outpatient department record represents one household-reported outpatient department event during Rounds 1, 2, and 3. Outpatient department events reported in Round 3 and known to have begun after December 31 are not included in this file.

ER, OP, and OB Services and Procedures

- LABTEST
- SONOGRAM
- XRAYS
- MAMMOG
- MRI
- EKG
- EEG
- RCVVAC
- ANESTH
- OTHSVCE

These services, which are received during the visit, include lab tests, a sonogram or ultrasound, x-rays, a mammogram, an MRI or CAT scan, an electrocardiogram, an electroencephalogram, a vaccination, anesthesia, or other diagnostic tests or exams.

OP and OB Treatments, Services, Procedures, and Prescription Medicines

- PHYSTH
- OCCUPTH
- SPEECHTH
- CHEMOTH
- RADIATTH
- KIDNEYD
- IVTHER
- DRUGTRT
- RCVSHOT
- PSYCHOTH

These types of treatments include physical therapy, occupational therapy, speech therapy, chemotherapy, radiation therapy, kidney dialysis, IV therapy, drug or alcohol treatment, allergy shots, and psychotherapy and counseling.

Home Health Event File

Home Health Event File

- Estimates home health utilization and expenditures
- Used to construct summary variables
- Each record represents a household-reported home health event

The Home Health Event file provides detailed information on home health events for a nationally representative sample of the civilian noninstitutionalized population of the United States. The file can be used to make estimates of home health utilization and expenditures for a particular year.

Persons with more than one event are represented on the file more than once. Likewise, persons who did not have a home health event are not represented on the file.

What Is a Home Health Event?

- A home health event is a **month** of similar services provided by the same **home health provider**

Similar services are one or more types of services (e.g., nursing care, homemaker services, physical therapy) that the person receives at about the same frequency each month. For example, if someone received four visits from a nurse, ten visits from a homemaker, and four visits from a physical therapist for 3 months, then there will be three event records on the file (not 54 records).

Who Are Home Health Providers?

- Formal providers (paid)
  - Home health agency, hospital, or nursing home
  - Independent paid provider
- Informal providers (unpaid)
  - Family
  - Friends

For home health agencies, hospitals, and nursing homes, it is important to distinguish between the provider and the home health worker. In these cases, the provider is the agency or the facility that employs the workers. The home health workers are the people who visit the home and administer the care. Paid independent providers generally include companions, nursing assistants, physicians, etc.

Who Are Home Health Workers?

- Examples of home health workers
  - Nurses
  - Physical therapists
  - Home health aides
  - Homemakers
  - Hospice workers
  - Others

The examples listed above are generally the types of workers associated with agencies, hospitals, and nursing homes.

How Are Events Reported?

- Type of home health worker
  - May have more than one type of worker on a single record
- How often did "someone from _____" come to the home
  - Days per month
  - Days per week
  - Times per day
  - Length of visit

One or more types of workers are listed on each record. For frequency of visits and length of visit, no distinction is made by type of home health worker. For some types of analyses, this may be a problem; e.g., homemakers frequently stay for several hours while a nurse or therapist usually doesn't stay for more than an hour.

Home Health Days

- Number of home health days (HHDAYS) is estimated using
  - Days per week
  - Days per month

HHDAYS is estimated for all event types (i.e., agencies, nursing homes, hospitals, paid independent providers, and informal care providers).

Caveats of HHDAYS

- HHDAYS accounts for all visits within an event regardless of type of worker
- Number of times a specific type of worker visited the home is not known
- Intensity of care can be estimated using hours of care per day

The number of home health days a person received care for an event does not distinguish between the number of visits made by specific types of workers. For example, if someone had 12 visits in a month and was seen by both a nurse and a homemaker, HHDAYS would not indicate the number of visits by each type of worker.

Data were collected in this manner because agencies, hospitals, and nursing homes provide expenditure data in this manner. Costs are not broken down by the number of times a specific type of worker visits. This same definition was applied (i.e., a month of similar services) to all types of providers to be consistent with the definition of a home health event.

Summary

- Home health event record represents 1 month of similar services
  - Same provider
  - Same type of workers
  - Same number of visits
  - Same services
- If more than one worker visited, cannot distinguish the number of days seen by each type of worker

Other Data Collected

- Year and month event began
- Repeat visit
- Due to hospitalization
- Conditions
- Type of independent paid provider
- Types of services provided by independent paid provider and friends and relatives
- Flat-fee variables
- Expenditures

Types of independent paid provider and types of services provided by independent paid providers and informal providers follow a different skip pattern in the questionnaire than the skip pattern for other paid providers. Analysts are advised to read the questionnaire and follow the skip patterns carefully to avoid not estimating all types of services received for an individual.

Expenditure Data

- Home health agency, hospital, and nursing home
  - Sampled at a rate of 100% for MEPS-MPC
  - No household responses
- Independent paid providers
  - Not included in MEPS-MPC
  - Household responses only
- Informal providers
  - No expenditure data

All expenditure data for paid independent providers are fully imputed from household-reported expenditures. There are no expenditure data for informal care. Informal provider care results in a -1 in all expenditure categories.

File Structure

- File 1
  - Characteristics of event
  - Imputed expenditure data
    - Home health agency, hospital, nursing home
    - Paid independent provider
- File 2
  - Unimputed expenditure data
    - Home health agency, hospital, nursing home
    - Paid independent provider

To determine expenditure data for agencies, hospitals, and nursing homes from expenditures for paid independent providers, an analyst must use the variable that tells whether a provider works for an agency or works for himself or herself (SELFAGEN) in conjunction with the expenditure data.

Other Medical Expenditures File

What Are Other Medical Expenditures?

- Glasses and contacts
- Insulin and diabetic supplies
- Ambulance services
- Orthopedic items
- Hearing devices
- Medical equipment
- Disposable supplies
- Bathroom aids and alterations

File Content

- Other medical expenditure (OME) variables
  - Type of OME
  - Edited type of OME
  - Other specified type of OME

Data Collection

- OME not included in MEPS-MPC
- OME data collected in Round 3 as a summary for full survey year
- Collected every round:
  - Glasses
  - Insulin
  - Diabetic supplies

Insulin and diabetic supplies are reported as prescribed medicine expenditures and are missing from the OME file.

Caveats of OME file

- A record can represent one or more purchases of an item or service
  - If $2,000 was spent on ambulance services, it is not known if there was one or more uses of an ambulance
- Not linked to conditions
  - It is not known which condition required the use of an ambulance

Prescribed Medicines File

Prescribed Medicines File

- Is an event-level file
  - Each record represents a unique prescribed medicine event and characteristics associated with that event
- Is a full-year file
  - Includes all prescribed medicines events reported by household respondents for a particular year
- Includes self-filers and non-self-filers
- Includes free samples
- Includes insulin and diabetic supplies/equipment

A flag variable indicates whether the event is one of a self-filer (SF) or a non-self-filer (NSF). Non-self-filers are people whose pharmacy providers automatically send in claim forms for them at the point of purchase; self-filers send in their own claim forms for their prescriptions. Self-filers went through the Charge and Payment section of the MEPS-HC; non-self-filers did not go through the Charge and Payment section of the MEPS-HC.

A free-sample flag can be used to subset to purchases only, if that is what an analyst is interested in.

An insulin, diabetic supply/equipment flag indicates those events determined to be insulin, diabetic supply/equipment events. This determination was based on a code assigned to each event and what that code represented. Although these types of purchases usually do not require a prescription, they were kept in the prescribed medicines estimates because, more often than not, a prescription is written so that insurance will pay for them (80% of these types of events had third-party payments).

Data Collection

- Household Component (MEPS-HC)
- Pharmacy Component (MEPS-PC)

Household Component. During each round, respondents were asked to supply the medication name of any prescribed medicine (PM) they or their family members purchased or obtained during that round (respondents were asked about those PMs related to other non-PM events first). Respondents were also asked to include the names of any free samples. They were asked the following about each PM they mentioned: whether the PM was used to treat a certain health condition; the number of times the PM was purchased or obtained; the date when the person first used the PM; and the names, addresses, and types of pharmacies that filled their PM.

Respondents were asked whether they send in a claim form (SF) for their PM purchases to their insurance providers or if their pharmacy sends in claims for them at the point of purchase (NSF). If an SF, the respondent goes through the Charge and Payment section of the MEPS-HC. If an NSF, the respondent does not go through the Charge and Payment section of the MEPS-HC.

Pharmacy Component. This effort consisted initially of a mail survey to pharmacies, which included some telephone follow-up. Respondents were asked for permission for their pharmacy providers to be contacted. The pharmacy was asked to provide a computerized printout of all drugs for each person in the survey who signed a permission form and purchased or obtained drugs from that pharmacy. The following information was asked for each drug purchased or obtained: date prescription was filled, National Drug Code (NDC), generic or brand name of drug, strength (amount and unit), quantity (package size and amount dispensed), total charge, and sources of payment.

Data Editing and Imputation

- MEPS-PC used as edit and imputation source
- Generic codes assigned to each MEPS-HC and MEPS-PC event to assist with matching
- Outliers, data inconsistencies, and missing data were identified and edited, as necessary
- Free samples identified
- Household-reported events matched to pharmacy-reported events

Generic codes were assigned to each drug event based on medication name and the NDC, when available.

Free samples (FS) were identified by asking a person if any FS were obtained. However, the number of FS obtained was not asked. If a person said he or she did receive an FS, one household-reported event was then designated as an FS. One caveat to this procedure should be noted: when a household-reported event designated as an FS turned out to be an exact match to a MEPS-PC event, the event was re-designated as not being an FS.

Several types of matches were possible when matching MEPS-HC events to MEPS-PC events: 1 = an exact match for a specific event for a person, 2 = refill of an exact match, and 3 = not an exact match or refill of an exact match. Matching between MEPS-HC and MEPS-PC events was based primarily on generic code, medication name, and round reported.

Characteristics of Drug Included for Each Prescribed Medicine Event

- Medication name
- National Drug Code (NDC)
- Quantity dispensed
- Form
- Strength of dose
- Unit of measurement of dose

Medication name can be reported on the MEPS-HC or MEPS-PC. For most events, only the imputed PC medication name is included on the file. However, for some events (the events for which the NDC was imputed from a secondary data source), the MEPS-HC-reported medication name, as well as the originally reported MEPS-PC NDC and medication name, are included on the file. Due to a licensing agreement and legal restrictions related to that agreement, the NDCs could not be released to the public for events where the NDC was imputed from a secondary, proprietary data source. Therefore, by releasing the MPES-HC-reported medication name, as well as the originally reported MEPS-PC NDC and medication name, analysts can perform their own imputations for those records, if they so desire. Analysts can have access to those "restricted" imputed NDCs only through the CCFS Data Center.

A number of values for form and strength are missing on the file (which was missing data from the pharmacies). This missing information was not imputed because that information can be obtained from the NDC.

Other Information Included for Each Record

- Round in which the PM was obtained or purchased
- Date when PM was first taken
- Types of pharmacy
- Conditions associated with the PM
- Sources of payment
- Total payment

All pharmacy-related variables, including the type of pharmacy, are not related to a specific PM event. Because there is no direct link between a PM event and a pharmacy, these pharmacy-related variables simply show the possible pharmacies or types of pharmacies that a drug may or may not have been obtained or purchased from. There are four possible types of pharmacies: (1) mail-order, (2) HMO/clinic/hospital, (3) drug store, and (4) another store.

Condition codes are listed for each PM event for approximately 99.7% of conditions. However, for those PM events where a respondent mentioned more conditions than represented by the 99.7%, an analyst must link to the MEPS Medical Conditions file (of the respective year) to obtain all conditions related to that particular PM event.

The total payment is equal to the sum of all payments.

Caveats/Anomalies of the Prescribed Medicines File

- Unique PM identifier
- Only includes edited or imputed expenditures
- Does not include expenditure imputation flags
- Does not include a total charge variable
- Does not include flat-fee variables

Each record on the file has a unique identifier, which is a 17-character variable. Positions 1-12 are the original PM event ID and the link ID of that drug event (which can be used to link the PM event to other MEPS files for a respective year), positions 13-14 are the unique drug identifier (unique NDC), and positions 15-17 are the refill number (enumerates refills of a unique NDC). Each record on the file represents a purchase or obtainment of a medication (whether it be an original purchase or a refill).

For example, the following identifiers represent five records, each representing one prescribed medicine mention for a person in a given round, that include three unique prescribed medicines, with the first one having two refills: 000020260083**01001**, 000020200 83**01002**, 000020260083**01003**, 000020200 83**02001**, and 000020260083**03001**. These five records were originally one prescribed medicine mention by a household respondent in a given round; however, the example shows that one mention can include various NDCs, and original purchases as well as refills.

Because no Charge and Payment information is obtained from the MEPS-HC for NSF, no MEPS-HC reported amounts are provided on the file. No imputation flag for expenditures is included on the file, because only imputed expenditures are included on the file. No total charge variable is included on the file, because pharmacy providers did not want to reveal discounts and, therefore, did not provide that information a majority of the time.

Prescribed medicines were not included in the flat fees. Flat fees are defined as a “group” of events that are all part of the same flat-fee payment situation. For example, pregnancy is typically covered in a flat-fee arrangement where the prenatal visits, the delivery, and the postpartum visits are all covered under one flat-fee dollar amount.

HC010I: Appendix File

- File 1: Condition-Event Link File
- File 2: Prescribed Medicines-Event Link File (RXLK)
- Condition-Event Frequency Table
- Utilization and Expenditures Summary Table
- SAS Examples of Merging and Linking MEPS Data Files
- Clinical Classification Code to ICD-9 Code Crosswalk
- Matrix of MEPS Data Items
- Methodology Reports

Appendix File for Event Files

- File 1: Condition-Event Link File
- File 2: Prescribed Medicines-Event Link File (RXLK)
- Condition-Event Frequency Table
- Utilization and Expenditures Summary Table
- SAS Examples of Merging and Linking MEPS Data Files
- Clinical Classification Code to ICD-9 Code Crosswalk
- Matrix of MEPS Data Items
- Methodology Reports